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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,810	03/19/2004	Jonathan J. Wierer JR.	LUM-03-05-01	8900

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EXAMINER	
HO, TU TU V	

ART UNIT	PAPER NUMBER
2818	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

T.H

Office Action Summary	Application No.	Applicant(s)	
	10/804,810	WIERER ET AL.	
	Examiner	Art Unit	
	Tu-Tu Ho	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28,32,33 and 38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28,32,33 and 38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/02/2007 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1-4, 6-14, 17-21, and 26-28** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10, 13-33, and 36-46 of copending Application No. 10/059,588 (the '588 application, published as U.S. Patent Application Publication 2003/0141507). Although the conflicting claims are not identical, they are not patentably distinct from each other because said claims of the present invention is a similar version of said claims of the above-identified U.S. Patent Application with similar intended scope.

Specifically, the '588 application claims "GaN" in claim 8 versus the claimed limitation "III-nitride" of claim 1; "periodically varying thickness with alternating maxima and minima" of claim 1 and "photonic band structure" of claim 18 versus the "photonic structure" of claim 1; "substantially reflective surface" of claim 4 versus the claimed "metal reflector" of claim 1; the lattice constant as a mathematical relationship with the emitted wavelength of claims 1 and 22-23 versus claims 10-12.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-2, 4, and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gopinath U.S. Patent Application Publication 2002/0079497 (the '497 reference).

The '302 reference discloses in the figures, particularly Fig. 1, and respective portions of the specification a light emitting device as claimed.

Referring to **claim 1**, the '497 reference discloses a light emitting device (VCSEL 10, Fig. 1, paragraph(s) [0003] and [0021]) comprising:

a (group-) III-nitride semiconductor structure ("indium gallium arsenide nitride", paragraph(s) [0003]) including an active region (18, paragraph(s) [0021]) disposed between an n-type and a p-type region (not shown, "Carrier confinement can be achieved by varying the resistivity of the materials between the electrical contacts and the active regions", paragraph(s) [0004] and "doped etalon structure with p^+ and n^+ contacts on either side of the etalon..", paragraph(s) [0029]); and

a photonic crystal structure (generally indicated at etched pillar 30, paragraph(s) [0022]) formed in at least a portion of the n-type region (as clearly indicated in Fig. 1 and armed with the teachings in paragraph(s) [0004] and [0029]); and

a metal reflector (12 or 22, paragraph(s) [0003] and [0021]) disposed on at least a portion of a surface of the (not shown) p-type region opposite the active region (18).

Referring to **claim 2**, the reference further discloses that the photonic crystal structure comprises a periodic variation in a thickness of the n-type region (as clearly indicated in Fig. 1 and armed with the teachings in paragraph(s) [0004] and [0029]).

Referring to **claim 4**, the reference further discloses that the photonic crystal structure comprises a planar lattice of holes (better seen in Figs. 2 and 4).

Referring to **claims 13 and 14**, the reference further discloses filling the holes with air, which has a dielectric constant of about 1 as known by persons of skill in the art, or other materials, which has a dielectric constant larger than 1, thus overlapping and meeting the claimed limitation of a dielectric constant of about 1 and about 16.

5. **Claims 1-2, 4, 8, 13-14, 17-21, and 26-27** are rejected under 35 U.S.C. 102(e) as being anticipated by Erchak et al. U.S. Patent 6,831,302 (the '302 reference, cited in a previous office action).

The '302 reference discloses in Fig. 1 and respective portions of the specification a light emitting device as claimed.

Referring to **claim 1**, the '302 reference discloses a light emitting device comprising:

a (group-) III-nitride semiconductor structure including an active region ("light generation region" 130, column 9, line 10-25) disposed between an n-type and a p-type region (134 and 128); and

a photonic crystal structure (generally indicated at holes 150) formed in at least a portion of the n-type region (134); and

a metal reflector (126, column 9, lines 53-62) disposed on at least a portion of a surface of the p-type region (128) opposite the active region (130).

Referring to **claim 2**, the reference further discloses that the photonic crystal structure comprises a periodic variation (column 10, lines 10-15) in a thickness of the n-type region (134).

Referring to **claim 4**, the reference further discloses that the photonic crystal structure (generally indicated at holes 150) comprises a planar lattice of holes (150).

Referring to **claim 8**, the reference further discloses that the planar lattice is triangular (column 10, lines 10-15), satisfying the claimed Markush group of a triangular lattice, a square lattice, a hexagonal lattice, and a honeycomb lattice.

Referring to **claims 13 and 14**, since the reference does not teach intentionally filling the holes (150) with a material or removing air from the holes, the holes (150) are filled with air, a natural dielectric material, which has a dielectric constant of 1, which meets the claimed limitation of a dielectric constant of about 1 and about 16.

Referring to **claims 17-20**, the reference teaches that the total thickness of the group-III nitride semiconductor layers including the n-type region (134, having a thickness of 320 nm, column 9, lines 10-20), the active region (130, having a thickness of 120 nm, column 9, lines 10-20), and the p-type region (128, having a thickness of 40 nm, column 9, lines 10-20) is about 480 nm, which is about the thickness as claimed of less than 0.5 μm (500 nm) or of less than 1 μm (1000 nm).

Referring to **claim 21**, the reference further discloses that a portion of the reflector underlies the photonic crystal structure.

Referring to **claim 26**, the reference further discloses that the reflector (126) comprises silver (column 9, lines 14-17).

Referring to **claim 27**, the reference further discloses that the photonic crystal structure is formed in a first portion of the n-type region (134), the device further comprising a contact (136) formed on a second portion of the n-type region, the second portion being substantially free of the photonic crystal structure.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. **Claims 3, 5-7, 9-12, and 15-16** are rejected under 35 U.S.C. §103(a) as being unpatentable over Erchak et al. U.S. Patent 6,831,302 (the '302 reference, cited in a previous office action).

Referring to **claims 3, 6, and 10-12**, although the reference does not teach a range of ratios of the period of the periodic structure and the wavelength of light emitted by the active region as claimed, the reference discloses that the period and the diameter of the holes 150 and the periodic structure of the photonic crystal structure comprising holes 150 can change (column 10, lines 14-16), and because it has been accepted that manipulation of sizes, shapes, and

efficiency is routine skill inherently possessed by a person or ordinary skill in the art, therefore such manipulation would have been obvious.

Referring to **claims 5 and 6**, although the reference does not teach a range of the depths for the holes as claimed, as detailed above, the reference disclose that the depth of the holes can be changed (column 10, lines 10-16), and because it has been accepted that manipulation of sizes, shapes, and efficiency is routine skill inherently possessed by a person or ordinary skill in the art, therefore such manipulation would have been obvious.

Referring to **claim 7**, although the reference does not disclose a range of greater than a value of the radiation (light) emitting or exiting the device as claimed, the reference teaches improving light extraction efficiency and increasing light output (column 10, lines 25-30), and because it has been accepted that manipulation of sizes, shapes, and efficiency is routine skill inherently possessed by a person or ordinary skill in the art, therefore such manipulation would have been obvious.

Referring to **claim 9**, as detailed above for claim 8, the reference discloses that the planar lattice is triangular, satisfying the claimed Markush group of a triangular lattice, a square lattice, a hexagonal lattice, and a honeycomb lattice; however, the reference fails to teach that the planar lattice includes more than one lattice type as recited in claim 9. Nevertheless, as the reference does not teach that the planar lattice must be a single planar lattice type, such a change to include more than one lattice type would have been obvious to one of ordinary skill in the art at the time the invention was made.

Referring to **claim 15**, although the reference does not disclose a range of a distance between the reflector and the photonic structure as claimed, the reference teaches that the depth of the holes can be changed (column 10, lines 14-16), and because the holes, which define the photonic structure, do not reach the reflector layer 126, the reference in effect teaches that a distance between the reflector and the photonic structure can be changed, and because it has been accepted that manipulation of sizes, shapes, and efficiency is routine skill inherently possessed by a person or ordinary skill in the art, therefore such manipulation would have been obvious.

Referring to **claim 16**, although the reference does not teach a distance between a center of the active region (130) and the photonic crystal region is less than a distance as claimed, the reference teaches that the depth of the holes can be changed (column 10, lines 14-16), and

because the holes, which define the photonic structure, do not reach the active region 130, the reference in effect teaches that a distance between the active region and the photonic structure can be changed, and because it has been accepted that manipulation of sizes, shapes, and efficiency is routine skill inherently possessed by a person or ordinary skill in the art, therefore such manipulation would have been obvious.

7. **Claims 1-2, 4, 13-14, 21, and 26** are rejected under 35 U.S.C. §103(a) as being unpatentable over Lester U.S. Patent 6,091,085 (the '085 reference, cited in a previous office action) in view of Scherer et al. U.S. Patent 6,534,798 (cited in a previous office action).

The '085 reference discloses in Fig. 7 and respective portions of the specification a light emitting device substantially as claimed.

In particular, the reference discloses a light emitting device as claimed but does not teach a metal reflector and consequently does not teach that the metal reflector is disposed on at least a portion of a surface of the p-type region opposite the active region.

Specifically, the reference discloses a light emitting device comprising:

a (group-) III-nitride semiconductor structure including an active region (18, Fig. 1, col. 2, last paragraph; no number in Fig. 7) disposed between an n-type and a p-type region (col. 2, last paragraph, and col. 5, lines 30-35, which n-type region and p-type region are generally indicated at p-n-junction layer 32 of Fig. 7 and p-type region 14 and n-type region 13 in Fig. 1); and

a photonic crystal structure (generally indicated at hole pattern 35, Fig. 7, col. 5, lines 30-45) formed in at least a portion of the p-type region.

More specifically, the upper doped region of the region 32 of Fig. 7, if formed similarly to Fig. 1, of the reference is a p-type as compared to the n-type as claimed. However, one of ordinary skill in the art recognizes that polarity of the upper doped region can be changed so long as to form two complementary doped regions sandwiching the active region, therefore such changing of the polarity of the doped regions would have been obvious to one of ordinary skill in the art.

As for the limitation "a metal reflector disposed on at least a portion of a surface of the p-type region opposite the active region", Scherer, in also disclosing a light emitting device,

teaches that a light emitting device having a metal reflector (such as metal reflector 18, Fig. 1H, col. 5, lines 10-20) disposed on at least a portion of a surface of the p-type region or the n-type region, which he terms collectively as "semiconductor core" (Figs. 1 and 3) opposite the active region (not shown) and on a surface of the support substrate 20 (Fig. 1H, col. 5, lines 1-55) helps with light output ("quantum efficiencies") of the light emitting device (column 1, lines 20-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the '085 reference's light emitting device such that it includes a metal reflector such as the silver reflector 18, taught by Scherer, disposed on at least a portion of a surface of the p-type region (at the lower surface of the p-n junction 32, Fig. 7, the '085 reference) opposite the active region (18, Fig. 1, no label in Fig. 7) and on a surface of the support substrate 33, in accordance with the teachings in Scherer. One would have been motivated to make such a change in view of the teachings in Scherer that such a change results in higher light output for the light emitting device.

Referring to **claim 2**, the reference further discloses that the photonic crystal structure comprises a periodic variation in a thickness of the n-type region (as seen in Fig. 7).

Referring to **claim 4**, the reference further discloses that the photonic crystal structure (generally indicated at holes 35) comprises a planar lattice of holes (35).

Referring to **claims 13 and 14**, the reference further teaches filling the holes (35) with air or a material other than air (col. 5, lines 50-55), which has a dielectric constant of 1, which meets the claimed limitation of a dielectric constant of about 1 and about 16.

Referring to **claim 21**, the reference in view of Scherer further discloses that a portion of the reflector underlies the photonic crystal structure.

Referring to **claim 26**, the reference in view of Scherer further discloses that the metal reflector comprises silver, as noted above.

8. **Claims 1-28, 32-33, and 38** are rejected under 35 U.S.C. §103(a) as being unpatentable over over Scherer et al. U.S. Patent 6,534,798 (the '798 reference, cited in a previous office action) in view of Lester U.S. Patent 6,091,085 (cited in a previous office action).

The '798 reference discloses a light emitting device having metal clad semiconductor microcavities with period texturing on a top, semitransparent metal layer (Figs. 1-3, col. 4, lines

20-67), overlying a III-nitride light emitting layer (which is termed a semiconductor core or membrane 12, Figs. 1 and 3, col. 4, lines 20-67), which in turn overlying a reflector 18, which in turn overlying a substrate 20. The reference further teaches various sizes and shapes as recited in **claims 3-6, 8-12, 15-16, and 38** (cols. 3-5), teaches that air could fill the photonic crystal structure (Fig. 7), which air has a dielectric constant of 1 as required in **claims 13-14**, further teaches a thickness for the III-nitride layer (Abstract and cols. 3-4) meeting the various thickness of the III-nitride layer as recited in **claims 17-20**, specifically teaches a metal silver layer (18) as required in **claims 1, 21, and 26** (Figs. 1-3, and as detailed above), discloses a host substrate (20, Figs. 1, col. 5, lines 1-50) similar in scope as recited in **claims 22-25**, and although not disclosed, contacts for the light emitting device to function in similar scope as recited in **claims 27-28** and intended use of the output light as recited in **claim 7**.

The '798 reference further discloses that comparing with a traditional light emitting device. i.e., a light emitting device without said microcavities and period texturing, light extraction efficiency is increased about 35% (col. 4, lines 30-35).

However, the reference does not disclose forming a photonic crystal structure in at least a portion of the n-type region and in a portion of the doped III-nitride light emitting layer and as claimed.

Lester in the '085 reference, in also disclosing a light emitting device including a III-nitride layer and a photonic structure as detailed above, teaches that a photonic structure ("light pipes"), which is a pattern of holes (Fig. 7), should extend down into at least a portion of the n-type region (or the p-type region) and into a portion of the doped III-nitride light emitting layer so as to increase light intensity (col.5, lines 20-67), up to 70-80% more light than similar light emitting device without light pipes (col. 5, lines 50-60.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the '798 reference's device such that a photonic structure formed at least in a portion of the n-type region (or the p-type region) and in a portion of the doped III-nitride light emitting layer, in place of or in addition to microcavities in the metallic layer. One would have been motivated to make such a change to obtain a light intensity increase of about 70-80% (instead of or in addition to the about 35% increase as in the case of the microcavities in the metal layer).

9. **Claims 1-16, 21, 26-28 and 32-33** are rejected under 35 U.S.C. §103(a) as being unpatentable over over Joannopoulos et al. U.S. Patent 5,955,749 (the '749 reference, cited by Applicant) in view of availability of III-nitride semiconducting material, for example disclosed in U.S. Patent Application Publication 20040165850.

The '749 reference discloses a light emitting device having a semiconductor structure including an active region (506, Fig. 5, col. 7, lines 55-67) disposed between an n-type and a p-type region (504 and 508); and

a photonic crystal structure (generally indicated at elements 510, col. 8, lines 9-67) formed in at least a portion of the p-type region and at least a portion of the n-type region; and

a metal reflector (silver reflector 622, col. 8, lines 45-55) disposed on at least a portion of a surface of the n-type region opposite the active region (18).

The reference further teaches various sizes and shapes as recited in **claims 3-6, 8-12, and 15-16** (cols. 3-6), teaches that air could fill the photonic crystal structure (col. 8, lines 10-15), which air has a dielectric constant of 1 as required in **claims 13-14**, does not restrict a particular thickness for the III-nitride layer, specifically teaches a metal silver layer (col. 8, lines 45-55) as required in **claims 1, 21, and 26** (Figs. 5-6, and as detailed above), the photonic crystal structure extending into the active region, the photonic crystal structure extending into the n-type and p-type regions as required in **claims 32-33**, and although not disclosed, contacts for the light emitting device to function in similar scope as recited in **claims 27-28** and intended use of the output light as recited in **claim 7**.

However, the '749 reference (i) does not teach that the semiconductor structure is a III-nitride semiconductor as claimed and (ii) in the embodiment of Figs 5-6, shows a substrate/metal reflector/n-region/active region/p-region instead of the claimed substrate/metal reflector/p-region/active region/n-region.

Nevertheless, for (i), at the time the invention was made, it has been known to artisans in the light emitting art that III-nitride semiconductor was a known and a suitable mayoral for light emitting device. See, for example, U.S. Patent Application Publication 20040165850, paragraph(s) [0056]); and for (ii), it is clear to *one of ordinary skill in the art* that the difference is that of an "intended use", the various relative laying out of the positive (p-type) and negative

(n-type) claddings and the eventual corresponding positive (p-type) and negative (n-type) electrodes and/or contacts, and such laying out was within routine skill of the artisan.

Lester in the '085 reference, in also disclosing a light emitting device including a III-nitride layer and a photonic structure as detailed above, teaches that a photonic structure ("light pipes"), which is a pattern of holes (Fig. 7), should extend down into at least a portion of the n-type region (or the p-type region) and into a portion of the doped III-nitride light emitting layer so as to increase light intensity (col.5, lines 20-67), up to 70-80% more light than similar light emitting device without light pipes (col. 5, lines 50-60.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the '798 reference's device such that a photonic structure formed at least in a portion of the n-type region (or the p-type region) and in a portion of the doped III-nitride light emitting layer, in place of or in addition to microcavities in the metallic layer. One would have been motivated to make such a change to obtain a light intensity increase of about 70-80% (instead of or in addition to the about 35% increase as in the case of the microcavities in the metal layer).

Response to Arguments

10. In response to applicant's argument that *one of ordinary skill in the art* would never be motivated to form a reflector on the top surface of the semiconductor device of Lester (Remark dated 05/02/2007, page 6, sheet 2), it is concurred that one would not want to do that because such modification would cancel out the benefit of the photonic crystal light pipes. However, as clearly taught by the references and as detailed above in paragraph numbered 7, *one of ordinary skill in the art* would form such a reflector between the p-type region and the substrate.

11. In response to applicant's argument that *one of ordinary skill in the art* would not see the benefits of combining the two mechanisms (photonic crystal light pipes and surface plasmon photonic crystal structure) (Remark dated 05/02/2007, page 7, sheet 3), it is respectfully pointed out that *one of ordinary skill in the art* clearly see the benefits of combing the references, as

detailed above in paragraph numbered 8 for the purpose of increasing light outputs over or in addition to an increased light output..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu-Tu Ho whose telephone number is (571) 272-1778. The examiner can normally be reached on 7:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tu-Tu Ho
May 12, 2007